CLAIMS

1. Method for assigning to a set of products (P_1, P_2, P_3, P_4) a set of corresponding continuous demand densities (D_{P1c}, D_{P2c}, D_{P3c}, D_{P4c}) comprising the following steps:

- a conversion step (10) wherein for each product (P_1, P_2, P_3, P_4) its demand time series ($H(P_1)$, $H(P_2)$, $H(P_3)$, $H(P_4)$) is converted into a discrete demand density (D_{P1d}, D_{P2d}, D_{P3d}, D_{P4d}),

- a normalization step (20) wherein said discrete demand densities (D_{P1d}, D_{P2d}, D_{P3d}, D_{P4d}) are transformed into normalized discrete demand densities (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d}),

- a clustering step (30) wherein each of said normalized discrete demand densities (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d}) is assigned to a cluster (C_1, C_2) and wherein for each said cluster (C_1, C_2) a cluster-representative discrete density (R_{fC1}, R_{fC2}) is determined,

- a selection step (40) wherein for each cluster-representative discrete density (R_{fC}) out of a predetermined set (L_D) of continuous model densities (D^m_{Mc}) a cluster-representative continuous density (D^m_{Cc}) is selected,

- a parameter-determination step (50) wherein for each product (P_1, P_2, P_3, P_4) for its cluster-representative continuous density (D^m_{Cc}) product-individual density parameters (p(P)) are determined under use of which for each product (P_1, P_2, P_3, P_4) a continuous density (D^m_{P1c}, D^m_{P2c}, D^m_{P3c}, D^m_{P4c}) is determined,

- a adjustment step (70) wherein for each product (P_1, P_2, P_3, P_4) average and variance of said continuous density (D^m_{P1c}, D^m_{P2c}, D^m_{P3c}, D^m_{P4c}) are adjusted to form said continuous demand density (D_{P1c}, D_{P2c}, D_{P3c}, D_{P4c}).

2. Method according to claim 1, further comprising a clustering correction step (60) wherein for each product (P_1, P_2, P_3, P_4) a distance (d_p) between its continuous density (D^m_{P1c}, D^m_{P2c},

D^m_{P3c}, D^m_{P4c}) and its normalized discrete demand density (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d}), is determined and wherein for those of said products (P_1, P_2, P_3, P_4) whose distance (d_p) exceeds a predetermined threshold value (t_h), in a substitute-selection step (63) for the corresponding normalized discrete demand density (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d}) out of said predetermined set (L_D) of continuous model densities (D^m_{Mc}) a substitute continuous density (D^m_{P1cS}, D^m_{P2cS}, D^m_{P3cS}, D^m_{P4cS}) is selected, which is defined for that product (P_1, P_2, P_3, P_4) as its continuous density (D^m_{P1c}, D^m_{P2c}, D^m_{P3c}, D^m_{P4c}).

3. Method according to claim 1, wherein in the conversion step (10) the demand time series is substantially segregated from demand trend and periodic demand.

4. Method according to claim 1, wherein in the normalization step (20) normalization information is maintained for the adjustment step (70).

5. Method according to claim 1, wherein for each of the clusters (C_1, C_2) an initial cluster representative (X_1, X_2) is provided, and wherein the clustering step (30) comprises for each of the normalized discrete demand densities (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d})

- a distance determination step wherein for each said initial cluster representative (X_1, X_2) its distance ($d_C(X_i, D^N_{Pid})$) from the normalized discrete demand density (D^N_{Pid}) is determined, and

- a modification step wherein the one initial cluster representative (X_i) is modified towards the normalized discrete demand density (D^N_{Pid}) to which it has the smallest distance ($d_C(X_i, D^N_{Pid})$), said modified cluster representative (X_i) being thereafter defined as new initial cluster representative (X_i).

6. Method according to claim 5, wherein the distance determination step and the modification step are repeated one or more times for each of the normalized discrete

demand densities (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d}), starting with the initial cluster representatives (X_1, X_2) that are present after the previous last modification step.

7. Method according to claim 5, wherein the initial cluster representatives (X_1, X_2) that are present after the last modification step are selected in the clustering step (30) as the cluster-representative discrete density (R_{fC}).

8. Method according to claim 1, wherein in the clustering step (30) a said cluster representative (X_1, X_2) is substantially not modified when its distance ($d_C(X_i, D^N_{Pid})$) to those normalized discrete demand densities (D^N_{P1d}, D^N_{P2d}, D^N_{P3d}, D^N_{P4d}) that belong to the corresponding cluster (C_1, C_2), is below a predetermined value.

9. Method according to claim 1, wherein the predetermined set (L_D) of continuous model densities (D^m_{Mc}) contains the model densities (D^m_{Mc}) with its parameters (p) in an undetermined form and wherein the parameters (p) for the clusters (C_1, C_2) are determined in the selection step (40).

10. Method according to claim 1, wherein in the normalization step (20) the demand value for 0 pieces of the products (P_1, P_2, P_3, P_4) in the discrete demand densities (D_{P1d}, D_{P2d}, D_{P3d}, D_{P4d}) is rescaled inversely to the demand values for more than 0 pieces of the same product (P_1, P_2, P_3, P_4).

11. Method according to claim 1, wherein in the selection step (40) the demand value for 0 pieces of the products (P_1, P_2, P_3, P_4) is suppressed.

12. Method according to claim 1, further comprising a safety stock determination step (80) wherein with a given service level ($SL(P_1)$, $SL(P_2)$, $SL(P_3)$, $SL(P_4)$) from the continuous demand density (D_{P1c}, D_{P2c}, D_{P3c}, D_{P4c}) for one or more of the products (P_1, P_2, P_3, P_4) a product safety stock level ($s_i(P_1)$, $s_i(P_2)$, $s_i(P_3)$, $s_i(P_4)$) is determined.

13. Method according to claim 12, further comprising a product order step (110) wherein via an output device an order for a said product (P_1, P_2, P_3, P_4) is initiated towards a product-providing entity, in the event that a current stock level $S(P_1)$, $S(P_2)$, $S(P_3)$, $S(P_4)$ of that product (P_1, P_2, P_3, P_4) falls below a minimum quantity ($Q_m(P_1)$, $Q_m(P_2)$, $Q_m(P_3)$, $Q_m(P_4)$) that is the sum of the average of the discrete demand density (D_{P1d}, D_{P2d}, D_{P3d}, D_{P4d}) for said product (P_1, P_2, P_3, P_4) during the product's lead time ($LT(P_1)$, $LT(P_2)$, $LT(P_3)$, $LT(P_4)$), and the determined safety stock level ($s_i(P_1)$, $s_i(P_2)$, $s_i(P_3)$, $s_i(P_4)$) for said product (P_1, P_2, P_3, P_4).

14. Computer program product comprising program code means for performing a method according to claim 1.

15. Computer program product according to claim 14, comprising the program code means stored on a computer-readable medium.

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